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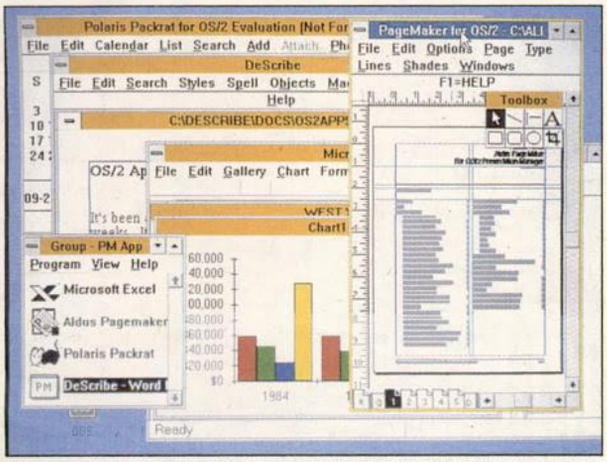
FROM THE TEST CENTER

Dot-Matrix Printers

InfoWorld tests six 24-pin printers that provide great output at a great price. Page 65.



On a system with 4 megabytes of RAM, OS/2 1.2 loaded Pagemaker, Excel, Describe, Packrat, Sidekick, and a DOS window.

FIRST LOOK

Powerful PM Applications Should Give OS/2 a Boost

Pagemaker, Describe, Excel Worth the Wait

By Michael J. Miller

It's taken awhile, but something important has happened to OS/2 in recent weeks: It has become a real operating environment. Not only has OS/2 itself been enhanced with Version 1.2, but we're beginning to see significant Presentation Manager applications.

Recently, I've been using the first few full-featured PM applications. These include three ports of Windows applications — Aldus Pagemaker, Microsoft Excel, and Polaris Software's Packrat PIM — as well as Describe, an OS/2-specific word processor, and Sidekick for Presentation Manager. I have to say I'm impressed — both by the performance of the individual applications and by the way they work together under OS/2.

See First Look, Page 78

Server Offers 486 Multiprocessing

Netframe Family Brings Mainframe Power to PC LANs

By Mark Stephens

Netframe Systems Inc. showed last week what may be the first in a new class of expandable network file and application servers. The new servers feature multiple processors and fault-tolerant systems, but run industry-standard PC software like Netware 386 and OS/2 LAN Manager.

The Netframe servers adapt mainframe techniques to network computing, allowing a single server to support up to 1,000 users, according to Enzo Torresi, Netframe's president.

"As the network grows, this [multiprocessor] architecture allows you to add more I/O server cards to the Netframe, rather than more servers to the network," Torresi said.

The three servers announced last week are all tower configurations using Intel 80386 or 80486 processors. The NF100 is an entry-level machine with a 25-MHz 386 main processor; one 386-based I/O server (expandable to three I/O servers) supporting SCSI-II, RS-232, Localtalk, and Ethernet or Token Ring; 8 megabytes of RAM, expandable to 64 megabytes; and one 380-megabyte hard disk, expandable to four drives totaling 2.2 gigabytes. The base NF100 costs $22,500 and will ship in November.

The NF300 also uses a 25-

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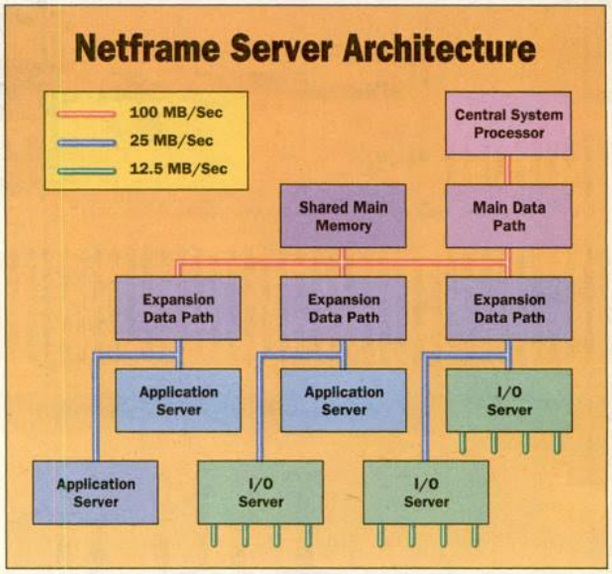


Netframe lets users add server cards rather than more servers.

IBM Beefs Up Micro Channel Capabilities

By Ed Scannell

NEW YORK — IBM lifted a veil on some of the advanced capabilities of its Micro Channel Architecture (MCA) last week. Unfortunately, what was revealed was long on future direction and short on near-term benefits to the user.

Company officials disclosed two new modes of data transfer that will eventually allow MCA users to transfer data at 160 megabytes per second — an eightfold increase over the capabilities of current PS/2 models.

The company also presented details on a new software protocol, called the Subsystem Control Block (SCB) Architecture, that allows add-in products that take advantage of the MCA's bus-master capability to operate on a peer-to-peer basis without involving the main processor.

See IBM, Page 101

Microsoft Tests Windows Version of Project Manager

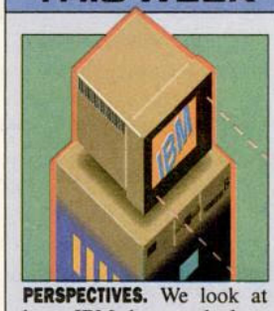
By Peggy Watt and Michael J. Miller

The overdue and still unannounced update to Microsoft Project will offer many additional ease-of-use features as well as something completely new for the project manager: Windows compatibility.

A prerelease copy of Microsoft Windows Project examined by *InfoWorld* shows a program that also answers many shortcomings of the current release, 2-year-old Project 4.0. It draws on the graphical interface to use icons, dialog boxes, and pop-up menus. Users can choose constraints from a task dialog box; colors and bars in the palette format box; and set up scales and other specifications through

See Project, Page 101

THIS WEEK



PERSPECTIVES. We look at how IBM has worked to incorporate personal computers into its overall systems strategy and how it's tried to lure customers back at the same time.

AT DEADLINE

Sybase Open Server Provides DB2 Access

Sybase Inc. will introduce Open Server this week, offering Sybase and SQL Server users transparent access to data stored in IBM's DB2 database, Oracle, Informix, and other databases, said sources at the company.

The software establishes a clean division between the client and server aspects of a database, providing a common intermediate format to which any database can translate. Sybase servers currently run on Sun, VAX/VMS, Pyramid, Next, and Stratus systems. Sybase technology also served as the basis for Ashton-Tate/Microsoft's SQL Server.

— Martin Marshall and Scott Mace

Continued on Page 3

IBM

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(See accompanying story.)

"Within IBM's environment, a server is simply a bus master," said Robert Carberry, vice president of systems engineering for IBM's entry systems division. "The MCA itself is like a 'LAN-in-a-box' because it has a self-contained client server."

IBM emphasized that this is not a new MCA. "This is not MCA 2," Carberry said. "These are capabilities that have always been inherent [to MCA]. What we are doing now is providing developers with a road map of the future."

That road map will lead down a development path at least a year long. While vendors with existing MCA products can take advantage of some new features through minor software changes, all vendors will have to redesign their hardware products to take full advantage.

"This is more of a positioning statement than an immediate benefit," said Brian Vesley, president of Aox Inc., an MCA add-in board developer, in Waltham, Massachusetts. Vesley believes, however, that IBM is doing the right thing by releasing specifications now.

"People will look at the specs and realize it won't make their 1-2-3 or Word Perfect run any faster unless they upgrade to systems with daisy-chained I/Os off a SCSI board or bus master," said John Dunkle, vice president of Workgroup Technologies Inc., in Hampton, New Hampshire.

The new modes of data transfer are called the 32- and 64-bit Streaming Data Procedures (SDP). The 32-bit procedure doubles the current PS/2s' capability to transfer data to 40 megabytes per second. The 64-bit procedure allows users to send data at 80 megabytes per second. The MCA will also support future extensions that will redouble the data-transfer rate to deliver 160 megabytes per second.

To cut down on the time it will take developers to create MCA boards, IBM has signed agreements with Intel Corp. and Chips & Technologies Inc. to develop and market chip-set interfaces for all PS/2s. But even with the help of these heavyweights, most developers said it will be a while before there will be a rich variety of bus-master products.

"Just to drive 64 address and data lines you'll have to have 64 bus drivers, a processor, bus-master logic, DMA logic, your timing stuff — all on a card 33 inches square," said Kerry Newcom, president of Capital Equipment Corp., maker of an MCA add-in chip. "That will take a while for people to figure out."

More skeptical observers saw IBM's decision to unveil the MCA's new capabilities now as a preemptive strike against the expected announcements of EISA-based systems.

"The EISA-based products deliverable in the fourth quarter demonstrate a real transfer rate compared to a promise of future performance by IBM," said Mike Swavely, president of Compaq Computer Corp.'s North American division.

IBM's MCA Enhancements

IBM's expanded Micro Channel Architecture definition addresses three key areas:

- Increased data-transfer rates through 32-bit and 64-bit Streaming Data Procedures.
- Fault detection for data integrity and correct addressing across the bus.
- A control-block architecture to provide improved communications between bus-master adapters and between a bus master and the system processor.

The **Streaming Data Procedures (SDP)** encompass two new modes for transferring data at high speeds across the bus. The first, **32-bit SDP**, provides the capability to transfer 32 bits of data, doubling the rate at which a PS/2 can transfer data, from the 20-megabyte-per-second current maximum to 40 megabytes per second. It provides for improved block data transfers by streaming data at 100-nanosecond intervals after the initial address transfer has been made.

As defined, **64-bit SDP** improves upon 32-bit SDP through multiplexing. By permitting the address bus to be used to carry data in parallel with the data bus following the initial address transfer, the bus can transfer 64 bits of data simultaneously (in effect providing 32 data lines and 32 address lines). This means that PS/2s can achieve an 80-megabyte-per-second data-transfer rate, four times the rate of today's PS/2 machines.

IBM's added **Data and Address Parity Checking** capabilities provide additional fault detection. Data Parity provides for data verification, eliminating the need to do two reads or two writes to verify correct transfer. Address Parity offers verification of correct addressing over the bus. Together they provide assurance that the data arrives at the right place unchanged. Also implemented is a **Synchronous Channel Check**, which allows error signaling to occur concomitant with data transfer. IBM's added fault-detection features will improve an MCA's reliability, guarantee data integrity, and foster robust software.

The **Subsystem Control Block Architecture** provides a consistent software protocol that allows bus masters to communicate and exchange data with — and independent from — the system's main processor. It will allow MCA to function as a local area network within a system, providing a consistent method for bus masters to operate on a peer-to-peer basis.

— Ron Copeland

IBM Announces Increase In Micro Channel Sales

BY ALICE LAPLANTE

NEW YORK — As part of last week's onslaught of technical and marketing hype about its Micro Channel Architecture (MCA), IBM released figures that supposedly prove Big Blue is gaining back the market share lost in recent years to clone makers.

For the first half of the year, total PS/2 sales are up 25 percent, according to Dave Thomas, president of IBM's national distribution division (NDD). Currently 60 percent of the machines sold through the dealer channel are MCA-based; 55 percent of the PS/2s sold directly by IBM to large corporate accounts are MCA-based machines, Thomas said.

Sales of MCA machines grew by 36 percent in the second quarter alone, he said.

In addition, IBM's overall market share grew by 2 percent in the first half of this year, and IBM's Models 50 Z and 70 are currently the best-selling 286 and 386 machines in the industry, Thomas said.

Sales figures show IBM's market share as "flat," said JoAnne Stahel, vice president of research at Storeboard Inc., a Dallas-based market researcher that tracks PC sales through the retail channel. However, Storeboard does not track sales made by IBM's value-added resellers or by IBM's direct sales force, which could account for the 2 percent increase that IBM is reporting, she said. Stahel also confirmed that the Models 50 Z and 70 are the market's best-selling 286 and 386 machines, respectively.

Starting in 1985, IBM steadily lost market share to Compaq and other clone makers. When the PS/2 was first announced in April 1987 and IBM cut off supplies of the still-popular PC XT and AT, IBM's market share dropped sharply. Since then, however, the popularity of the MCA has increased. (See Perspectives section, Page 53.)

Due to higher demand than anticipated, IBM is increasing production of the PS/2 Models 25 and 80, which have been constrained since the beginning of this year.

IBM has given out 2,666 ID numbers for MCA cards to 671 OEM card makers, said Bob Carberry, IBM's vice president of systems engineering for the entry systems division. There are currently 1,050 MCA cards available from 674 developers, he said.

Project

Continued From Page 1

the time-scale format box.

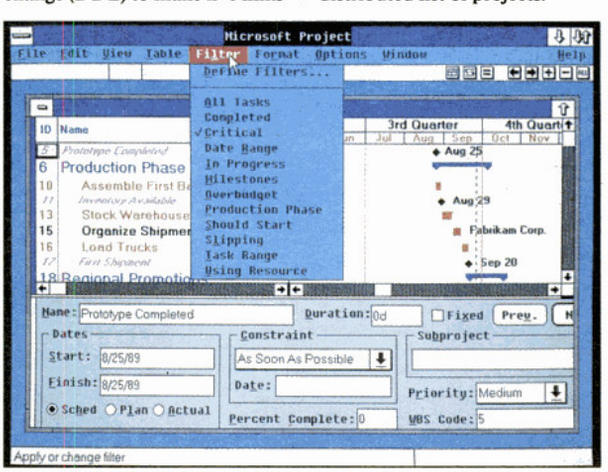
Other features include fill-in-the-blank entry in dialog boxes to define tasks; six menus with a host of formatting choices; filters to view only segments of schedules, such as only critical tasks, milestones, or other portions; and a choice of calendars.

A wider choice of views includes predefined Gantt and PERT charts, as well as resource forms, histograms, and task-entry forms. Windows Project also uses Dynamic Data Exchange (DDE) to make live links to Excel and other DDE-supporting Windows programs.

Windows Project is just one of many Microsoft Windows applications on the way. Also in the works with Windows 3.0 are Windows Word (See "Word for Windows Will Be More Than Just a Port," Page 13) and Powerpoint.

Project's memory demands indicate it may still be months from release. Beta users said that the program still needs too many refinements for them to plan on getting it soon.

Microsoft offered no comment, except to reiterate that a Windows project manager was among the products in a widely distributed list of projects.



Windows Project offers split screen functions, showing here the task function description box, timeline, and filter menu.

Netframe

Continued From Page 1

MHz 386, but can include up to eight I/O servers and 6.6 gigabytes of disk storage, as well as redundant power supplies. The base $35,000 unit will also ship in November. The NF400 uses a 25-MHz 486 processor and will be available in January, starting at $45,000.

Early units will ship with Netware 386 as the operating system; OS/2 LAN Manager will follow in January. Oracle Corp. and Informix Software also announced support for Netframe.

Netframe Systems Inc., 960 Hamlin Court, Sunnyvale, CA 94089; (800) 852-3726.

Shared Memory Speeds Data Flow

Netframe servers are true symmetrical multiprocessing engines, forced to operate in a world without multiprocessing software, according to company founder Carlton Amdahl.

Communication between processors is handled through shared memory, managed by the system processor, and directed through special interface chips connecting application and I/O servers. "The main data path — the highest speed bus — is actually realized in silicon, inside the Application Specific Integrated Circuit, running at 100 megabytes per second," Amdahl said. "For more throughput, we just add more parallel buses."

Once memory has been assigned for a process, I/O and application processors run independently. "The big killer of throughput is the complexity of protocols required to prevent errors and collisions," Amdahl continued. "With shared memory, flow control is implicit and data never collide, so we can get away with a much simpler protocol, speeding the flow of data. That's why it is so important to get all the processors in one box, communicating as fast as possible, rather than squeezing data through an Ethernet or Token Ring."